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1. Introduction

The basic question I would like to address in this paper is why overt personal pronouns in languages like Japanese cannot be construed as variables. In the example (1), the personal pronoun *kare* 'he,' unlike its English counterpart, cannot be construed as a variable (cf. Nakai 1976, Kitagawa 1981).[1]

(1) a. *Daremo$_i$-ga kare$_i$-no hahaoya-o aisiteiru.
Everyone-nom he-gen mother-acc love
'Everyone$_i$ loves his$_i$ mother.'

b. *Daremo$_i$-ga kare$_i$-ga tensai-da-to omotteiru.
Everyone-nom he-nom genius-cop-C think
'Everyone$_i$ thinks that he$_i$ is a genius.'

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1 Throughout this paper, I use indices only for variable binding; for other types of anaphoric relations, I use italics.

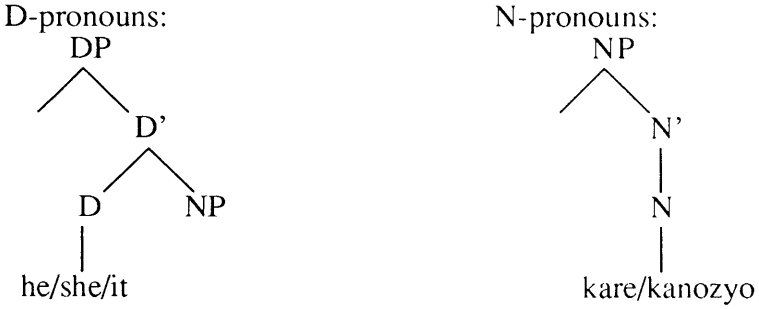
To explain this cross-linguistic difference, I would like to propose that there are two types of pronouns in natural languages,[2] and that only one kind has a potential of behaving as a bound pronoun. Specifically, English personal pronouns are basically classified as what I call "D-pronouns," i.e. determiner-type pronouns, whereas Japanese personal pronouns are classified as what I call "N-pronouns," i.e. noun-type pronouns, and I will show that it is only D-pronouns that can be construed as bound variables.[3]

This paper is organized as follows. In section 2, I will describe the cluster of properties exhibited by the two types of pronouns. In section 3, the categorial distinction introduced in section 2 will be related to variable binding from a theoretical perspective. Empirical evidence in support of the central claim of this paper will be presented in section 4, and I will briefly summarize the main points of the present paper in section 5.

2. D-Pronouns vs. N-Pronouns

Assuming the so-called "DP-hypothesis" in the sense of Abney (1987), I will describe the difference between D-pronouns and N-pronouns as in (2), where *kare* is a third person masculine singular and *kanozyo* is its feminine counterpart.[4]

(2)



2 This possibility is also suggested in Fukui (1988, footnote 13). Thanks to Naoki Fukui for pointing this out to me.

3 There is a series of work by Hoji (1990, 1991) which tries to explain the same range of phenomena. His idea is to reduce the property of the Japanese pronouns to some notion of 'demonstrativity.' It is not clear, however, how the Japanese pronouns are assimilated to the demonstrative pronouns and how such reduction can be theoretically implemented. For one thing, as Hoji himself notes, the reduction is not complete, and for another, the theoretical status of the notion of 'demonstrativity' is rather elusive to be evaluated against empirical data. For these reasons, I will not discuss his proposal here.

4 A brief remark on the previous works on Japanese personal pronouns is in order here. It has been stated in the literature, for example by Mikami (1953) and Kuroda (1965), among others, that Japanese personal pronouns are not pronouns but common nouns and that Japanese does not in fact possess overt personal pronouns. My claim is slightly different from theirs in that I maintain that Japanese does possess personal pronouns, and that the difference between Japanese and English personal pronouns is simply reduced to the difference in syntactic category. This is based on a simple assumption that the core function of Japanese personal pronouns, like that of personal pronouns in many other languages, is to pick out an individual presupposed to exist in the domain of discourse. This intuition would not be captured by the view which identifies Japanese personal pronouns with common nouns which do not have such a presupposition.

The fact that Japanese personal pronouns are not construed as variables follows if we assume that only D-pronouns can get bound. There are two obvious questions that arise at this point.

(3) a. What is the actual difference between D-pronouns and N-pronouns?
b. Why is it only D-pronouns that can be bound?

In the remainder of this section, I will discuss the question (3a), by examining the differences in behavior between the two pronominal types, and postpone the discussion of the other question until the next section.

The similarity between determiners and personal pronouns was first noted by Postal (1969). He cites examples like (4) and claims that the personal pronouns in English are some sort of definite articles and that the pronouns in these cases are in fact in the determiner position.

(4) a. us three men
b. we Americans
c. you foolish soldiers
d. you honest policemen

This claim is supported in some other respects as well. Semantically, it is the pronouns in these examples, but not the common nouns, that contribute to the definiteness of the entire noun phrase,[5] and categorially, the English pronouns belong to a closed class like articles, a fact which is captured naturally by the view that English pronouns are determiners. A close look at the cross-linguistic differences between English and Japanese personal pronouns will further support Postal's basic insight; the Japanese personal pronouns syntactically differ from the English ones and that the difference results from the distinction between lexical and functional categories, i.e. the difference between N-pronouns and D-pronouns.

First, consider the examples in (5):

(5) a. *nihonzin watasitati
Japanese we

b. *keisatukan anatatati
policemen you

Japanese is a strictly head-final language, but these examples are not grammatical, which would be unexpected if the Japanese pronouns were D-pronouns; if DP is head-final in Japanese and if Japanese pronouns were D's, then there would be nothing wrong with these examples.

Second, Japanese pronouns can be modified by an adjective as in (6) (cf. Kuroda (1965:105)), and they can be preceded by a genitive pronoun as in (7).

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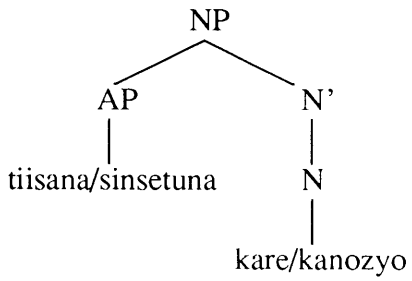
5 It is on this semantic ground that Postal's analysis is to be favored over an approach by, say, Delorme and Dougherty (1972), who argue for an appositive analysis of (4). Thanks to Barbara Partee for discussion on this point. Note in passing that there are cases where English pronouns ocur in an appositive constructions as in *them their eyes*, which needs to be treated differently from (4).

(6) a. tiisana kare '*small he'
b. sinsetuna kanozyo '*kind she'

(7) a. watasi-no kare '*my he (= boyfriend)'
b. anata-no kanozyo '*your she (= girlfriend)'

Notice that this is quite in contrast with the English pronouns, which in general do not cooccur with a prenominal modifier, as indicated by the gloss for (6) and (7).[6] The cooccurrence of a prenominal modifier and a pronoun in Japanese, however, is expected if we assume that the Japanese pronouns are syntactically nouns as represented in (8).

(8)



The third argument for analyzing Japanese personal pronouns as nouns and English pronouns as determiners is that, as the meaning of (7) indicates, the pronouns *kare* and *kanozyo* undergo a semantic drift so that they can mean 'boyfriend' and 'girlfriend,' respectively, in sharp contrast to the English pronouns where this kind of phenomenon never occurs. This contrast is quite natural, however, if we regard the contrast as reflecting the lexical/functional distinction since it is only lexical items that undergo semantic change.[7]

To summarize, the cluster of properties discussed here strongly suggests that there is a fundamental difference between Japanese and English pronouns: the Japanese personal pronouns are nouns, whereas the English pronouns are determiners.[8]

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6 There are in fact certain cases in which English pronouns can be modified as in *the real me*, and I will return to this point in 4.2.

7 Japanese pronouns are inflected for number in the same way that common nouns are:

(i) a. otoko-ra b. kodomo-ra
man-pl child-pl
'men' 'children'

(ii) a. kare-ra b. kanozyo-ra
he-pl she-pl
'they (male)' 'they (female)'

Although it is imaginable that D-pronouns in some languages can be inflected for number, as Hagit Borer has pointed out, this parallelism between common nouns and pronouns is another indication that Japanese pronouns are N's.

8 The discussion here does not exclude the possibility that there exist intermediate cases where personal pronouns behave like D-pronouns with respect to some properties and like N-pronouns with respect to the others. In fact, this situation happens even in English as we

3. Binding and Syntactic Categories

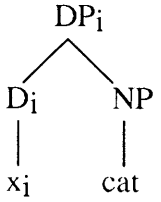
Now let me turn to the next question: why is it only D-pronouns that can be bound? My explanation to this question hinges on what I regard as the fundamental property of functional categories, and I propose the following:

(9) Functional categories are potential variables.

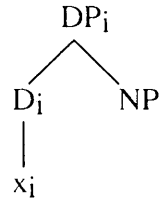
This proposal is not in fact surprising. For example, Borer (1989) argues that Agr can assume an anaphoric property, which accounts for the control phenomena in many languages. The agreement system in polysynthetic languages is also relevant in this regard since in those languages, personal pronouns behave like agreement, or vice versa, and there is also an intuition constantly reported in the literature that Agr is pronominal. It seems quite natural to develop this intuition further to hypothesize that such pronominal elements can function as variables, although at this point I will not work out such an analysis of Agr.

As for the functional element inside noun phrases, Heim's (1982) work is highly suggestive. She has convincingly shown that indefinite and definite noun phrases are construed as free variables, the difference between them resulting from the occurrence of a relevant index, i.e. new or familiar index, and the descriptive content of the common noun, which is presupposed in definites and is merely asserted in indefinites. (See Heim 1982 for details.) The significance of her analysis in the present context is that the indefinite article and the definite article are not represented directly in the logical representations. I would like to claim that functional categories can be associated with variability and pronouns as bound variables are one instantiation of this general property of functional categories. Specifically, my claim is that variables are actually in the determiner position, so that definites and indefinites are represented as in (10a), and that bound pronouns are interpreted in the same way as in (10b) since they are determiners.

(10) a. Indefinites/Definites
a cat/the cat



b. D-pronouns
he/she/it



The only difference between indefinite and definite noun phrases on one hand and D-pronouns on the other is the lack of descriptive content in the latter (cf. Postal 1969, Stockwell, Schachter, and Partee 1973). It now follows under this analysis that it is only D-pronouns that can be construed as bound variables, and that N-pronouns cannot be so construed.[9]

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will see in 4.2. The important task is therefore to determine which is the default value for personal pronouns in a given language.

9 Being a D is only a necessary, but not a sufficient, condition. This is shown by the fact that there are D's that cannot function as variables like the demonstrative *this* in English:

If the hypothesis (9) is supported on independent grounds, it would entail that there is a significant coherent grammatical process which covers variable binding in general. I will call such a process "functional binding," which is schematically represented as in (11).[10]

(11) *Functional Binding*
...$_i$...F$_i$..., where F = functional head

In functional binding of D, for example, the index on D is bound by an index on an operator, and an interpretation procedure will link the variable and the meaning of NP. Hence, *a/the cat* is interpreted as "x such that x is a cat."

Before closing this section, a brief note on indexing is in order here. Under the system developed in this section, the indexing procedure is constrained in terms of *syntactic categories* rather than in terms of structural relationships; functional categories are legitimate categories which can bear an index, whereas lexical categories may not.[11] (But see footnote 9.) Given the idea proposed by Partee (1978), and pursued by Reinhart (1983), Roberts (1985), among others, that binding is a grammatical process whereas coreference is a pragmatically constrained anaphoric relation, and that it is the binding process, rather than coreference, which regulates an assignment of an index, it follows that D-pronouns such as the English pronouns can bear an index and therefore can be bound, whereas N-pronouns such as the Japanese pronouns cannot bear an index and therefore cannot be construed as bound variables.

4. Empirical Implications

4.1 Japanese Determiners

So far we have discussed the nature of the Japanese personal pronouns such as *kare* and *kanozyo*, two personal pronouns inherently associated with the feature [+human]. A natural question that arises at this point is whether the same analysis carries over to the non-human counterpart *sore* 'it.' Contrary to our expectation,

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(i) a. Every boy$_i$ dates a girl who adores that$_i$ boy.
b. *Every boy$_i$ dates a girl who adores this$_i$ boy.

10 I will leave open the question whether reflexives which also function as variables are to be assimilated to functional binding. If the answer is in the negative, that would entail that lexical categories have to be inherently anaphoric in order to enter into binding. Also relevant in this context is Partee's (1989) claim that lexical categories such as *local* and *enemy* can have a variable anchored to their antecedent in the sentence or in the discourse. These cases might also be treated as involving lexical anaphors, but I will leave this issue open here.

11 I assume that the index is assigned onto the head and percolates to the phrasal node, rather than assigned to the phrasal node and percolated down to the head. These two alternatives are hard to test empirically, but I opt for the indexing of D for the following reasons. First, it can directly capture the lexical variation noted in footnote 9; among determiners, there are some like *this* that cannot be bound. Second, assignment of an index to a phrasal node still needs a mechanism which checks against the lexical property just mentioned. An important point to be noted is that the percolation of an index on D is not automatic, and is excluded in cases where the determiner is a possessor; otherwise sentences like *Everyone$_i$ likes his$_i$ mother* would be ruled out by condition B. See 4.2 for relevant discussion.

however, the expression *sore* can be construed as a bound variable, as noted by Nishigauchi (1990), Hoji (1990, 1991), among others. Consider the following examples, which contain the genitive form *sono*:

(12) a. Dono kaisya$_i$-mo so$_i$-no kaisya-ga itiban-da-to omotteiru.
which company-also it-gen company-nom best-cop-C think
'Every company$_i$ thinks that that$_i$ company is the best.'

b. Dono kaisya$_i$-mo so$_i$-no kaisya-no seihin-o homeru.
which company-also it-gen company-gen product-acc praise
'Every company$_i$ praises its$_i$ company's products.'

In these sentences, the genitive pronoun *sono* is bound to a quantified noun phrase, and functions as variables. The case where the non-genitive *sore* is bound is shown by 'donkey' sentences. The following example is adapted from Nishigauchi (1990:205):

(13) [Dono hon$_i$-o kaw-te-mo] Mary-wa kanarazu sore$_i$-o yon-da.
which book-acc buy-TE-also Mary-top without fail it-acc read-past
'Whenever she bought a book$_i$, Mary read it$_i$ without fail.'

This example is similar to the following English sentence in relevant respects.

(14) Whenever John sees a donkey$_i$, he beats it$_i$.

In these cases, the pronouns are clearly construed as variables; (13) is thus interpreted as 'For all x, x a book, when Mary bought x, Mary read x without fail.'

These facts indicate that there is an asymmetry between personal pronouns such as *kare* and *kanozyo* on one hand and the non-human *sore* or its genitive counterpart *sono* on the other. In other words, the pronouns such as *sore* are similar to the English pronouns in that they are bound. It is this fact that has led linguists like Mikami (1953) to conclude that Japanese does not possess personal pronouns except *sore*.

One crucial difference between N-pronouns such as *kare* and *kanozyo* on one hand and *sore* on the other is that the latter is actually part of the demonstrative paradigm, whereas the former is not, at least in the present-day Japanese. The following is taken from Kuno (1973:282):

(15) *Demonstratives in Japanese:*

ko-series	*so-series*	*a-series*
kore 'this one'	sore 'that one'	are 'that one there'
koitu 'this guy'	soitu 'that guy'	aitu 'that guy there'
kono '(of) this'	sono '(of) that'	ano '(of) that over there'
konna 'like this'	sonna 'like that'	anna 'like that over there'
koko 'here'	soko 'there'	asoko 'over there'
kotira 'this way'	sotira 'that way'	atira 'that way over there'
koo 'in this way'	soo 'in that way'	aa 'in that way'

Kuno describes the difference among these three series of demonstratives as follows:

(16) "The *ko*-series is used for referring to something near the speaker, and the *so*-series for indicating something closer to the hearer than to the speaker. On the other hand, the *a*-series is used for referring to something at a distance from both the speaker and the hearer."

It seems natural to conjecture that being a part of a paradigm is one characteristic property of functional categories; demonstratives in Japanese are syntactically determiners or at least generated inside the DP projection, in view of the examples such as *sono kaisya* 'that company' where *sono* is not in a head position, but shares a relevant feature with D presumably as an instantiation of SPEC-head agreement (cf. Chomsky 1986).[12] The reason why the pronoun *sore* can be bound is now clear; since it is part of the demonstrative system, it is a D-pronoun.

That demonstratives can be bound is supported by the following English sentence noted by Evans (1977:491).

(17) Every logician$_i$ was walking with a boy near that$_i$ logician's house.

Thus, it seems natural to conclude that *sore* is a D-pronoun in Japanese on a par with the English personal pronouns.

This conclusion is further supported by the following data. The demonstratives in Japanese can be permuted with the prenominal modifier:

(18) a. *sono* itiban sita-no musume
that most under-gen daughter
'that youngest daughter'

b. itiban sita-no *sono* musume
most under-gen that daughter
'that youngest daughter'

Under the analysis developed here, *sono* in (18a) can be in a DP projection, whereas *sono* in (18b) is a prenominal modifier inside NP. It is then predicted that the expression (18a) can appear in a binding context, whereas (18b) cannot. This prediction is indeed borne out. Consider the following examples:

(19) a. Dono titioya$_i$-mo sono$_i$ itiban sita-no musume-o kawaigaru.
which father-also that most under-gen daughter-acc love
'Every father$_i$ loves that$_i$ youngest daughter.'

b. *Dono titioya$_i$-mo itiban sita-no sono$_i$ musume-o kawaigaru.
which father-also most under-gen that daughter-acc love
'Every father$_i$ loves that$_i$ youngest daughter.'

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12 This discussion can then be regarded as a challenge to Fukui's (1986) claim that Japanese nominal phrases are exclusively NP's. I will leave this implication for future research.

The noun phrase *itiban sita-no sono musume* in (19b) can only be interpreted referentially, and the genitive demonstrative cannot be bound to the quantified expression *dono titioya-mo*. This contrast naturally follows from the claim made here: *sore* can be a D-pronoun in Japanese, which lends further support to the idea of functional binding.[13]

4.2 English N-Pronouns

We have seen so far that the English personal pronouns are D-pronouns. In fact, there are several cases which indicate that this is not always true. Consider the following sentences pointed out to me by Peggy Speas (personal communication):

(20) a. *I* like *the real me*.
b. Do *you* know *the real you*?

The personal pronouns are clearly in an N position since they are preceded by a determiner and a prenominal modifier. Barbara Partee (personal communication) also provided me with the following data. (For (21a,b), consider a situation where the sex of a baby/twin babies is at issue.)

(21) a. That's not a he; that's a she.
b. Those aren't he's; those are she's.
c. What makes you think that there is a real me and a false me? How many me's do you think that there are?

In these cases, the pronouns *he* and *she* are preceded by the indefinite article *a* (21a), they occur with a regular plural suffix (21b,c), a clear indication that the pronouns in these cases are in an N position. In fact, the category change into a noun is widespread in English. Notice that in the following example, the modal auxiliary *must* is turned into a noun:

(22) This dictionary is a *must* for anyone interested in Japanese.

These facts indicate that English pronouns which are functional in nature can turn into lexical items, and accordingly suggest that the English personal pronouns can be either D-pronouns or N-pronouns.[14]

More significantly, the sentences in (20) indicate that the idea of functional binding developed in section 3 is empirically supported. Recall from the previous section that functional categories are potential variables and that it is D-pronouns, but not N-pronouns, that can enter into a binding relation. This analysis entails that the pronouns in (20) cannot be bound since they are N-pronouns. In other words, the binding condition B does not apply to the pronouns in (20). Importantly,

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[13] A similar analysis can be applied to the Korean demonstrative *ku* 'that', which can also be used as a third person masculine pronoun and be interpreted as a bound pronoun. See Kang (1988) and Hoji (1990) for further discussion.

[14] A qualification is in order here. As Barbara Partee has pointed out, the pronouns in (21a,b) may not be called "pronouns," since there is not any antecedent (cf. footnote 4). Thus, those examples should be taken as a mere indication of the nominal status of the pronominal forms.

however, functional binding should still be available in principle with the expressions such as *the real me*, since there is a determiner. To put it in a different way, the binding condition is applicable to such expressions because of the index on DP which is percolated from the D node, but not to the pronoun itself. The following example thus violates condition B:

(23) *Every man$_i$ likes the$_i$ real him.

The variable in D has an index which percolates up to the DP node, which is now locally bound by its operator in its local domain, violating condition B.

One might wonder why the examples such as (20) are still grammatical, however. What is crucial in the contrast between (20) and (23) is that the antecedent in (20) is referential, whereas the antecedent in (23) is non-referential. Since the expressions such as *the real me* are definite descriptions, there is another avenue to rescue the examples (20), i.e. coreference. This possibility does not arise in (23), which does not involve a referential antecedent. In other words, *the real me/you/him* can enter into binding as long as condition B is not violated, and the expression itself can be referential as a definite description, in which case, it can be coreferential with another referential expression even when bound reading is excluded.

That the expressions in question can enter into binding is shown by the following example:

(24) Every man$_i$ admires a woman who knows the$_i$ real him.

This example can be interpreted in such a way that the determiner *the* is bound to the quantifier *every*, indicating that binding is still possible as long as it does not violate condition B, which is true in (24) under any formulation of condition B.

To see that the expression in question can also participate in coreference relation, consider the following contrast:

(25) a. *I* like *the real me.*
b. ??*I* like *me.*

The example (25b) involves a D-pronoun *me*, and as such violates condition B. The example cannot enter into coreference either, since coreference relation needs to be pragmatically licensed (cf. Partee 1978, Reinhart 1983); the anaphoric interpretation of (25b) could be expressed by means of reflexive binding, for example, and therefore the use of a reflexive pronoun is to be expected from a pragmatic viewpoint. The expression *the real me*, on the other hand, is pragmatically well-motivated in that it is not interpreted reflexively but rather introduces a distinct individual at some level of discourse.[15] The fact that focusing

[15] In this sense, the following example noted by Evans (1980:356) is comparable:
(i) *Oscar* loves *Oscar*'s mother.
It is the possibility of *de re* interpretation that licenses coreference in this example (cf. Castañeda 1968, Mitchell 1986). Notice incidentally that this point is incompatible with an

of the pronoun improves (25b) as in the following is another indication that the relevant noun phrase is only pragmatically licensed in the context where condition B would otherwise be violated.

(26) *I* like *ME*.

The pronoun in this example receives a contrastive stress, and as such, it is given a reading which would not be conveyed by means of a reflexive pronoun, although this remark is speculative at this point and needs to be substantiated further.

The contrast in (25) is significant in two respects: (i) a structural relation between an antecedent and a pronoun in terms of c-command is not sufficient to state condition B, since such a relation would make no difference in the cases at issue, and (ii) condition B can only make reference to D-pronouns but not to N-pronouns, a consequence which results from functional binding. In other words, condition B has to be formulated in such a way that it refers to an index of a variable, not directly to a pronoun.

The following contrast, due to Peggy Speas (personal communication), is straightforwardly explained under this analysis.

(27) a. *John* went to the psychiatrist yesterday, and learned about *the real him*.
b. *Everyone$_i$ went to the psychiatrist yesterday, and learned about the$_i$ real him.

(27b) is excluded on a par with (23) (i.e. **Every man$_i$ likes the$_i$ real him*); as a subject, the quantified noun phrase *everyone* is in the same local domain as *the real him*, violating condition B. Although (27a) cannot involve binding without violating condition B, *the real him* can be coreferential with the subject *John*, hence the well-formedness.[16] The sentence (27b) improves, however, if the relevant determiner is replaced with a bound pronoun whose index does not percolate up to the DP node; thus, the following sentence, pointed out to me by Barbara Partee (personal communication), is grammatical:

(28) Everyone$_i$ went to the psychiatrist yesterday, and learned about his$_i$ real self.

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approach which assumes that there is a binding module in grammar which regulates the occurrence of proper names such as the binding condition C of Chomsky (1981). See Reinhart (1983) and Grodzinsky and Reinhart (1993) for an argument that condition C is not a grammatical principle.

16 There are certain complications that arise at this point. The present analysis predicts that expressions such as *the real him* can be bound as long as condition B is not violated. In addition to (24), the following example, pointed out to me by Ken Safir, illustrates this point:

(i) Everyone$_i$ thinks that the real him is a genius.

The judgment of this example varies among native speakers of English, however. Moreover, the expression in question is better with a quantified noun phrase than with a *wh*-phrase as its antecedent. Thus, for those speakers who accept (i), the following example is degraded:

(ii) ?Who$_i$ told Mary that the$_i$ real him was intelligent?

Although the data in the text show that the expressions in question can be bound as well as referential, the examples in this footnote suggest that there is something more that needs to be explored. I will leave this issue open for future research.

This example does not violate condition B which I assume refers to an index on the phrasal node. In other words, this sentence is comparable to the following:

(29) Everyone$_i$ likes his$_i$ mother.

The pronoun *his* in this sentence can also be bound without violating condition B.

The following contrast also indicates that *the real him* can be coreferential:

(30) a. Those who know *the real him* admire *John*.
b. *Those who know the$_i$ real him admire everyone$_i$.

With a heavy stress on *the real him*, (30a) is given a coreferential reading, the only possibility in backward anaphora which does not involve reconstruction. In (30b), however, this option is not available since the antecedent of *the real him* is not referential; the status of the sentence is quite on a par with the following:

(31) *Those who know him$_i$ admire everyone$_i$.

Because of the non-referential nature of the antecedent, the only possibility is binding which is not available because of the lack of appropriate configuration. It is for this reason that (30b) is not licensed by any means.[17]

Finally, this analysis predicts that Japanese overt personal pronouns can participate only in coreference relations, not binding relations, since they are N-pronouns and that as such they are not subject to condition B. Given an appropriate context, Japanese pronouns can indeed occur in a position where they would otherwise violate condition B. Consider the following examples (cf. Hoji 1990).[18]

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17 It might be expected that the expression *the real him* cannot induce a sloppy reading when it would otherwise violate condition B. This prediction is not borne out, however.

(i) John went to the psychiatrist yesterday to learn about the real him, and Bill did so too.

This example is most naturally interpreted in a way that involves a sloppy identity reading, given an oddness of the situation where Bill went to the psychiatrist to learn about the real personality of John. Notice that *the real him* is in the same local domain as its subject *John*, and therefore, this would be a case of coreference, but not of binding. Related to this problem is the fact that Japanese personal pronouns can also induce a sloppy reading as noted by Hoji (1990). Thus, the following example is ambiguous:

(ii) John-ga kare-no kuruma-ni not-ta. Bill-mo da.
John-nom he-gen car-dat ride-past Bill-also cop
'John got in his car, and Bill did so too.'

An approach which claims that variable binding is indeed involved in this case would face a difficulty in answering why Japanese pronouns unlike English ones cannot be bound by a quantified noun phrase. Although I cannot go into these problems in this paper, an alternative is explored in my related work in which I claim that N-pronouns can induce a sloppy identity interpretation as a result of coreference.

18 Aoun and Hornstein (1991) claim that *kare* must be A'-free. The examples in (32) cast doubt on their claim since the pronoun is not subject to condition B, a condition on A-binding. Moreover, the pronoun can be coreferential with its antecedent in an A'-position, as indicated by the following example:

(i) *Tanaka Saburo*, Hanako-wa *kare*-ga kirai-da.

(32) a. *John*-ga *kare*-o eran-da.
John-nom he-acc choose-past
'**John* chose *him*.'

b. *Mary*-ga *kanozyo*-ni toohyoo-si-ta.
Mary-nom she-dat voting-do-past
'**Mary* voted for *her*.'

Although these examples are taken to indicate disjointness in an out-of-the-blue context, they are nevertheless well-formed in a context where each candidate in a certain domain of discourse is assumed to choose or vote for himself/herself, for example; the context cancels out the disjointness which would otherwise be imposed in the absense of reflexives (cf. Reinhart 1983).[19] When there is no such a context readily imaginable, however, the configuration in question is ill-formed:

(33) a. #*John*-ga *kare*-o nagur-ta.
John-nom he-acc hit-past
'**John* hit *him*.'

b. #*Mary*-ga *kanozyo*-o keotosi-ta.
Mary-nom she-acc kick down-past
'**Mary* kicked *her* down.'

The following example is interesting in this regard:

(34) *John*-ga *kare*-o mi-ta.
John-nom he-acc see-past
'**John* saw *him*.'

Most Japanese speakers' reaction to this example is that the sentence is ill-formed with the intended coreference. However, given a context where somebody is peeping into a room where John is dressing himself and is curious about whether John looks at himself or not, for example, the sentence becomes well-formed.

These examples are significant in that they show that condition B does not apply to Japanese pronouns which do not enter into functional binding due to the lack of an index on DP; otherwise the examples (32) and (34) would remain unaccounted for, and that disjointness is canceled out precisely in those cases which require some contextual support, confirming the idea that N-pronouns can only enter into coreference relations which are pragmatically licensed.

Tanaka Saburo, Hanako-top he-nom hate-dec
'*Tanaka Saburo*, Hanako hates *him*.'

The antecedent is in a left-dislocated position, which I assume is an A'-position. This remains problematic to Aoun and Hornstein's claim.

19 The contextual effect is thus seen more clearly in cases like the following:

(i) *Clinton*-ga *kare*-o erabu-no-wa toozen-da.
Clinton-nom he-acc choose-nom-top natural-cop
'*It is quite natural that *Clinton* chooses *him*.'

To summarize this section, all these facts strongly suggest that there is a systematic connection between binding and syntactic categories; functional categories such as determiners are potential variables, whereas lexical categories such as nouns cannot get bound, except perhaps for inherently anaphoric expressions like reflexives. In this section, we have seen that there are D-pronouns in Japanese, i.e. *sore*, and that English has N-pronouns. Despite their substandard status in view of the core cases (i.e. Japanese N-pronouns and English D-pronouns discussed in section 2), anaphoric properties of them naturally follow from the idea of functional binding.[20]

5. Conclusion

To conclude this paper, I have shown the following two points: (i) there are two types of pronouns in natural languages, i.e. D-pronouns and N-pronouns, and (ii) only D-pronouns can be construed as bound variables. The first point has been supported by the cluster of properties which results from the functional/lexical distinction. The second point has been theoretically supported by motivating the notion of functional binding, which is in turn supported on empirical grounds, through an examination of the behavior of Japanese D-pronouns and English N-pronouns. The idea of functional binding, however, needs to be tested on many other grounds, however, and I will leave it for future research.

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20 From a different perspective, Vergnaud and Zubizarreta (1992) independently reached the conclusion that determiners can be bound. (See also Guéron 1985.) The phenomena they discuss are inalienable constructions in French and English. Although their claim is highly relevant to the present paper, it came out too late to be discussed here.

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